

Isolation of potential mycotoxin producing fungi from roasted peanuts - a preliminary study

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Abstract

Roasted peanuts (*Arachis hypogaea*) is a ready to eat snack consumed in abundance by Sri Lankans. Peanuts can get contaminated with fungi during harvesting, processing, handling and storage. Presence of fungi such as *Aspergillus*, *Rhizopus* and *Penicillium* in roasted peanuts is of great health concern because these fungi release toxic secondary metabolites such as mycotoxins including aflatoxin, ochratoxin A, citrinin, ergot alkaloids, fumonisins, patulin, trichothecenes, and zearalenone which are associated with human disease ranging from acute poisoning to long-term effects such as immune deficiency and cancer. Further, inhalation or ingestion of fungal spores can lead to serious health effects mainly in the immuno-compromised. Since fungal contamination in ready to eat food product is of great health concern, this preliminary study was carried out to determine the fungi present in commercially available roasted peanuts being sold in Anuradhapura town area. Thirty commercially available roasted peanut samples were randomly collected from Anuradhapura city during August 2017 to March 2018. Eight nuts each from all 30 samples were plated on Saborouds dextrose agar (SDA) without surface sterilization. From 16 randomly selected samples, 8 nuts each were surface sterilized to remove surface contaminants with 1% Sodium hyperchlorite for 2 minutes and were plated on SDA. Samples were incubated at room temperature for 3-5 days. Fungal colonies were identified using morphological, macro and microscopic characteristics, according to standard methods. Of the 30 samples, 63% (n=19) which were not surface sterilized had growth of fungi such as *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus fumigatus*, *Penicillium sp* and *Rhizopus sp*. Of the 16 surface sterilized samples, 56.25% (n=9) had fungi such as *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus fumigates* and *Rhizopus sp*. This study showed the presence of mycotoxigenic fungi in several peanuts samples. Consumption of contaminated nuts for a prolonged period, could accumulate mycotoxins leading to carcinogenic and toxigenic effects in humans. In addition, consumers, mostly the immune-compromised are at risk of acquiring mycosis if spores are inhaled or ingested. Thus relevant authorities should regularly monitor and set guidelines for food safety, and people should be educated regarding the dangers of consumption of toxigenic mouldy food.

Keywords: Anuradhapura, *Arachis hypogaea*, Fungi, Mycotoxins, Peanuts

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